

PATENT

ELECTROSURGICAL APPARATUS AND METHODS FOR ABLATING TISSUE

RELATED APPLICATIONS

82 ✓ [0001] The present invention is a continuation of U.S. Patent Application No. 09/836,940, filed April 17, 2001, ^{now U.S. Pat. No. 6,746,447,} which is a continuation-in-part of U.S. Patent No. 6,296,638, filed November 20, 1998, ^{U.S. Pat. Application No. 09/197,013,} the complete disclosure of each is incorporated herein by reference for all purposes. _{now}

BACKGROUND OF THE INVENTION

[0002] The present invention relates generally to the field of electrosurgery, and more particularly to surgical devices and methods which employ high frequency electrical energy to resect, coagulate, ablate, and aspirate cartilage, bone and other tissue, such as sinus tissue, adipose tissue, or meniscus, cartilage, and synovial tissue in a joint. The present invention also relates to apparatus and methods for aggressively removing tissue at a target site by a low temperature ablation procedure, and efficiently aspirating products of ablation from the target site. The present invention further relates to an electrosurgical probe having a plurality of working zones distinguishable from each other on the basis of their aspiration and/or ablation rate.

[0003] Conventional electrosurgical methods generally reduce patient bleeding associated with tissue cutting operations and improve the surgeon's visibility. These electrosurgical devices and procedures, however, suffer from a number of disadvantages. For example, monopolar electrosurgery methods generally direct electric current along a defined path from the exposed or active electrode through the patient's body to the return electrode, which is externally attached to a suitable location on the patient's skin. In addition, since the defined path through the patient's body has a relatively high electrical impedance, large voltage differences must typically be applied between the active and return electrodes to generate a current suitable for cutting or coagulation of the target tissue. This current, however, may inadvertently flow along localized pathways in the body having less impedance than the defined electrical path. This situation will substantially increase the current flowing through these paths, possibly causing damage to or destroying tissue along and surrounding this pathway.

[0004] Bipolar electrosurgical devices have an inherent advantage over monopolar devices because the return current path does not flow through the patient